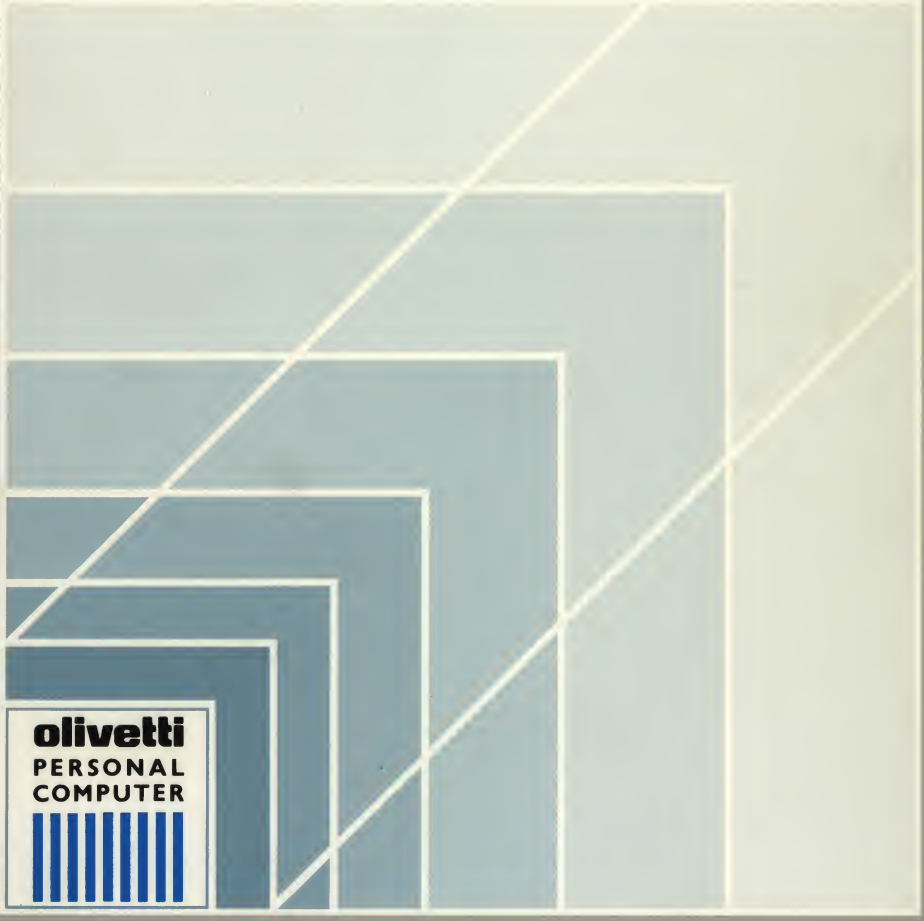
M111

Installation and Operations Guide



olivetti

PUBLICATION ISSUED BY:

Ing. C. Olivetti & C., S.p.A.
Direzione Documentazione
77, Via Jervis - 10015 Ivrea (Italy)

PREFACE

This guide is written for business professionals, engineers, programmers, and others who will be using this portable system as a problem-solving tool for the first time. It provides a brief introduction to the system and its major components, and explains how to begin operating with your system, and how to expand its capabilities through the addition of optional memory and expansion boards, external units, and so on.

No previous programming experience is required to understand the contents of this publication; however, a general familiarity with data processing concepts and terminology is assumed.

This guide has five chapters and four appendixes:

Chapter 1: is an introduction to your portable system.

Chapter 2: offers an overview of the system, and its major components, controls, indicators, and interfaces.

Chapter 3: describes how to begin operating your system, and how to use the SETUP Utility to configure your system.

Chapter 4: describes the system's keyboard and its use.

Chapter 5: provides advice on diskettes, disks, and drives.

Appendixes A - D provide information on:

A: Troubleshooting and the CUSTOMER TEST diagnostic program

B: Expanding the system

C: Care and replacement of the system's battery pack and the backlight

D: System technical characteristics

PRE-REQUISITE PUBLICATIONS: None

RELATED PUBLICATIONS: None

DISTRIBUTION: General (G)

FIRST EDITION: December 1988

CONTENTS

C. BATTERIES AND BACKLIGHT

D. TECHNICAL CHARACTERISTICS

YOUR PORTABLE SYSTEM

Congratulations. The portable system you have chosen represents the state of the art in today's world of personal computing. Developed around the 10 MHz NEC V30 microprocessor (fully compatible with the INTEL 8086 microprocessor) this system is versatile, powerful, and highly configurable.

The 16-bit architecture of the microprocessor maintains compatibility with previous INTEL microprocessors and offers a range of capabilities not available before.

Your system maintains downward compatibility with software created for previous lines of microprocessors. It provides the ability to operate at 8 MHz, as well as at normal 10 MHz speed, to ensure that timing-dependent applications operate without modification.

In the office or home environment, use your portable system as you would a standard desktop system. The integrated rechargeable battery pack means you can work with or without connection to an AC power supply at your convenience, or as circumstances dictate. Because of its compact size and design, it can be used almost anywhere.

Your portable system can grow along with your requirements. You can increase Random Access Memory (RAM) to accommodate the needs of memory-intensive software, including large spreadsheet and data base applications, Computer-Aided Design/Computer-Aided Engineering (CAD/CAE) applications. Telecommunications and network connection are possible through use of appropriate boards or a modem. You can connect a variety of peripherals including printers, external monitors, and graphics devices.

SUMMARY OF SYSTEM FEATURES

Your portable system features:

- the NEC V30 microprocessor (fully compatible with the INTEL 8086)
- support for the INTEL 8087 numeric coprocessor
- 16-bit architecture (address and data paths)
- 10 MHz microprocessor clock speed
- 640KB Random Access Memory (RAM); another 1MB of RAM can be added by installation of an optional memory expansion board
- an 8-bit XT-compatible slot for half-size XT-type expansion boards
- a standard Centronics parallel interface port
- a standard RS-232-C serial port
- an input device port (for connection of a PS/2-compatible mouse or keyboard)
- a numeric keypad port (for connection of an external PC/AT compatible numeric keypad)
- a monitor port (for connection of an external monitor)
- provision for an integrated modem's interface port (for connection of the optional integrated modem to the telephone network)
- mass storage and external storage capacity. The integrated devices depend on the configuration you have chosen. Your system will have either:

1. two integrated 3.5" disk drives (each capable of handling 1.44MB/720KB capacity diskettes); or

2. one integrated hard disk (20MB capacity) plus one integrated disk drive (capable of handling 1.44MB/720KB capacity diskettes)

- a Liquid Crystal Display (LCD) with:

  1. backlight control

  2. contrast control

  3. 25 lines with 80-characters per line in text mode (or 25 lines with 40-characters per line)

  4. Graphics capability, with a resolution of 640 x 400 pixels, CGA-compatible

- an 82-key keyboard (PS/2 Model 30 compatible). You can choose from a number of national keyboard versions

- a rechargeable battery pack

- a universal AC power adapter unit (to connect your system to external AC power supplies of 85-264 V, 50 or 60 Hz)

- an optional carrying bag is available that is strongly recommended for transporting the system; it can accommodate both the system and accessories (AC adapter, cables, printer, manuals, and so on)

NOTE: The GS mark has been released for the AC power adapter unit only (in accordance with rules EN 60950).

THE STARTER KIT

The Starter Kit contains the materials you need to start using your system. It will help you inspect, install, and operate your system.

The Starter Kit contains:

- the **Installation and Operations Guide,** the manual you are reading

- a 3.5" diskette labeled **CUSTOMER TEST**

IMPORTANT:

The Starter Kit DOES NOT include an operating system. That must be purchased separately.

To take full advantage of your system we recommend the use of **MS-DOS 3.30A, Revision 1.02** (or a later version).

Installation and Operations Guide

This guide contains the information you need to start using your system. It includes a brief introduction to the system, how to use the keyboard, how to use disks, how to install options, troubleshooting suggestions, and so on.

Customer Test Diskette

The CUSTOMER TEST diskette contains two essential programs.

- A diagnostic program for checking the modules of your system. This program can be run whenever you suspect that any part of your system is not working properly.

- A SETUP Utility program through which you can define your system's configuration. Your system may not operate correctly until this program has been used. We recommend that this program be run the first time you use your system.

HOW TO USE THIS MANUAL

At the end of this manual you will find a booklet containing the line drawings referred to in the text. These drawings show all the elements of the system described in the manual.

Throughout the manual, labeled parts of figures are referred to by numbers and letters, usually enclosed in parentheses. The number refers to the figure number of the drawing; the letter to a section of the drawing. For example, **(1,C)** refers to item **C** of **Figure 1.**

NOTE: The drawings representations of the components shown, not absolute reproductions.

A QUICK INSPECTION

With your system unpacked, make a quick check of the items you have received. You should have received:

- the portable system **(1,A)**
- the Starter Kit **(1,B)**, made up of this manual and a 3.5" CUSTOMER TEST diskette
- the AC adapter **(1,C)** (with its attached DC cable, to connect the adapter to the system) **(1,D)**
- the AC power cable (to connect the AC adapter to an external AC outlet) **(1,E)**

- The battery pack (1,F)

NOTE: We recommend that you keep all the packing material. It could be extremely useful if you ever want to ship your system (as distinct from carrying it with you).

CHOOSING A WORK LOCATION

Before opening your portable system, find a suitable working location. Your system can be used in almost any environment and in any place, but you should always try to observe the following basic rules. They are particularly important when you use your system in a non-office environment or under unusual or rough conditions.

1. Work with your system on a flat, firm surface.

2. DON'T subject your system to shocks and vibrations; this is especially important if your system is configured with a hard disk unit.

3. DON'T expose your system to chemical fumes or dust-laden environments.

4. DON'T expose your system to extremes of temperature or humidity. (See Appendix D for the temperature and humidity ranges for which your system was designed.)

5. DON'T place your system near sources of electrical or magnetic interference, such as large transformers, high-frequency devices, large electric motors, and so on.

6. DON'T expose your system to direct sunlight.

7. DON'T connect your system to an AC outlet that is not grounded (earthed).

FAMILIARIZING YOURSELF WITH THE SYSTEM

INTRODUCTION

This chapter describes the physical aspects of your system, its modules, switches, lights, integrated units, and connectors. You can save time and trouble by becoming familiar with them before trying to use the system for the first time

RETRACTABLE HANDLE

Figure 2 Shows your system unit closed, and with its retractable handle **(2,A)** extended.

> **NOTE:** While the basic use of the handle is for carrying the system, many users extend it when working: as a resting place for their wrists when entering data through the keyboard.

OPENING THE SYSTEM

The lid of your system which incorporates the LCD display, is held closed by two catches, **(2,B)**, one on each side of the lid.

To open the lid **(Figure 3)**, place the system on a work surface, press both catches simultaneously, and rotate the lid up.

> **IMPORTANT:** Rotate the lid carefully. Do not try to force it beyond its point of most resistance, at its maximum point of rotation.
>
> When closing the lid, **always** rotate it to its closed position, and press it down to engage the two latches, gently. Do not let the lid fall into place. Do not slam it shut.

Figure 4 shows a system configured with two diskette drives **(4,A)** and **(4,B)**.

Figure 5 shows a system configured with one diskette drive **(5,A)** and one hard disk drive. The hard disk drive is installed inside the system's casing. Only the protective ventilating grill cover **(5,B)** can be seen externally.

CONTROLS, INDICATORS, INTERFACES

Take a few minutes to familiarize yourself with the system's controls, indicators, interfaces, and connectors and with the AC power supply unit.

Front Panel

With the system's lid rotated up, as shown in **Figure 6**, the following can be seen:

- **(6,A)** is the power indicator LED. It lights when the system's Power On/Off switch is in its ON position.

  As described later, you can choose whether your system's microprocessor is to operate at its normal 10 MHz speed or at 8 MHz. The color of this LED indicates the speed at which it is currently operating:

  GREEN for 10 MHz operation.
  YELLOW for 8 MHz operation.

IMPORTANT: When this LED blinks, it means that battery pack power is running low. Recharge the integrated battery pack as soon as possible.

- **(6,B)** is the external monitor indicator LED. When lit, it indicates that the external video interface is in use, or that a CRT display controller board for an external monitor has been installed in the system.

- **(6,C)** and **(6,D)** are the disk drive indicator LEDs.

. **(6,C)** is the **second drive** indicator LED. It lights when the **second drive** of your system (the one installed on the left side of the system unit) is being accessed.

  Thus, depending on your configuration it indicates either diskette drive **B** or hard disk drive **C**.

. **(6,D)** is the diskette drive **A** indicator LED. It lights when the diskette drive on the right side of the system unit is being accessed.

  When lit, the color of these LEDs indicates the media being accessed in the drive. In the case of diskette drives, the LED color is:

GREEN if the diskette in use is of 1.44MB capacity;

YELLOW if the diskette is of 720KB capacity

For the hard disk, LED **(6,C)** glows **GREEN** when that drive is being accessed.

- Display contrast control slide **(6,E)** is the LCD Contrast Control slide.

  Slide it right to increase LCD screen contrast; left, to decrease contrast.

- **(6,F)** is the LCD Intensity Control slide.

  Slide it right to increase LCD backlight intensity; left, to decrease intensity.

Right Side

Figure 7 Shows the right side of the system unit.

- **(7,A)** is the battery pack cover.

- **(7,B)** is diskette drive **A** (present on all system configurations).

- **(7,C)** is the Mouse/Keyboard port.

  You can connect a PS/2 compatible Mouse or a PS/2 compatible keyboard to this port.

- **(7,D)** is the external numeric keypad port.

  You can connect a PC/AT compatible Numeric Keypad to this port.

- **(7,E)** is the speaker volume control knob.

  Rotate it toward you to decrease the volume of the system's loudspeaker; away from you to increase the volume.

Back Panel

Figure 8 shows the back panel of the system module, with the connector area cover door open. The door opens by side pressure on the two catches **(8,G)** that hold it shut.

> **NOTE:** Many users like to work with the system tilted up; they find it makes keyboard work easier. The simplest way to do this is to open the back panel connector cover, rotate it 180 degrees and rest the back of the system on its edge.

- **(8,A)** is the Battery Charge End Indicator LED. It lights when the battery is fully charged at the end of a charge cycle.

- **(8,B)** is the socket for connection of the DC power cable of the AC power adapter unit.

- **(8,C)** is the XT board option slot. It is designed for installation of a half-size XT-compatible expansion board.

- **(8,D)** is the parallel interface (Centronics) port, usually used for connection of a parallel interface printer.

- **(8,E)** is the external video interface port. It can be used to connect an external monitor, such as a CGA (Control and Graphics Array) color monitor.

- **(8,F)** is the serial interface (RS-232-C) port, used for connection of serial interface equipment.

Left Panel

Figure 9 shows the left side of your system. In the figure, a diskette drive is shown. If your system is configured with a hard disk, you will see a protective cover where the figure shows the diskette drive.

- **(9,A)** is the system's Power On/Off switch. The figure shows the switch in its OFF position (with the **O** end of the switch pushed in and the **I** end of the switch protruding).

- **(9,B)** is a cover plate to be removed if the optional integrated modem is installed in the system. If it is, the interface port of the modem will be available in this area.

NOTE: Two types of modem installation are thus available for your system: you can insert a modem board in the XT-compatible, half-size board, slot or you can have the optional integrated modem installed (it can be installed **ONLY** by an authorized technician).

Bottom Panel

On the bottom of the system unit are two covers: one over the bus where the optional 1MB memory expansion board can be installed; the other over the slot in which a half-size XT-compatible board can be installed. Appendix B describes installation of the 1MB memory expansion board and of XT-compatible boards.

AC ADAPTER

The universal power adapter provided with your system, **Figure 10,** can be connected to external power outlets that provide voltages from 85 V to 264 V AC (50 Hz and 60 Hz).

> **IMPORTANT:** Make sure the power outlet you want to use is **GROUNDED** (earthed) before you make the connection.

The AC Adapter unit consists of

- **(10,A)** the unit itself.
- At one end of the unit is the permanently attached DC power cable **(10,B)** and a LED **(10,C)** which lights when the unit is connected to an AC power source.
- At the other end of the unit is the socket for connection of the AC power cable **(10,E).**

GETTING STARTED

This chapter explains how to start using your portable system, with special emphasis on first time use. It explains powering on, Resident Diagnostics, system resets, and the SETUP Utility for system configuration.

IMPORTANT:

The first thing to do is to insert the battery pack. See Appendix C for the steps to be followed.

EXTERNAL POWER OR BATTERY?

Your portable system is designed to operate connected to an external AC power source or through its rechargeable battery pack, whichever you find most convenient at the time. However, it is recommended that you use external AC power whenever possible. Save battery operation for when you travel or find yourself at a location where AC power is not readily available.

NOTE: If you are connected to an AC source and there should be an AC power failure, your system will automatically switch over to battery power. No information will be lost.

After one or more battery power sessions, connect your system to AC power as soon as it is practical, to recharge the battery pack. This is especially important if the Power On LED **(6,A)** starts blinking during a battery power session (and the acoustic signal may sound, if you set the appropriate parameter when you set up your system, as described later in this chapter). The blinking indicates the battery pack charge is low. Battery pack charging and the requirements for charge cycles are described in Appendix C.

IMPORTANT:

- When you receive your system, the battery pack is approximately half charged. Therefore, use AC power the first time you operate your system, and leave the system plugged in until the Battery Charge End LED **(8,A)** lights up to indicate that the battery pack is fully charged, as described in Appendix C. The time required for a full charge depends on the current status of the battery pack; for a new, uncharged pack, it can require approximately five hours.

- The first time you use your system, the SETUP Utility, described later in this chapter should be run to confirm the system's configuration and to set certain timing and mode facilities parameters to suit your particular needs.

AC Power Connection

Figure 11 illustrates the steps involved in connecting your system to an external AC power supply:

1. **Make sure the system's Power On/Off switch (9,A) is in its OFF position.**

2. Insert the DC power supply cable of the universal AC adapter in the DC power connection socket on the back of your system **(11,A)**.

3. Insert the female-type connector end of the adapter's AC power cable **(11,B)** in the male-type socket of the adapter.

4. Insert the other end of the adapter's AC power cable to a **GROUNDED** (earthed) AC power outlet. The green LED on the adapter **(10,C)** will light.

TURNING ON THE SYSTEM

Before opening and turning on your system, place it on the stable, vibration-free surface on which you are going to work. If AC power is to be used, connect the universal AC adapter, as described above. Then:

- Release the catches that hold the top cover in place and rotate it up.
- Press the Power On/Off Switch **(9,A)** to its ON position (the **I** symbol end of the switch in).
- The Power On indicator LED on the front panel will come on.

After a few seconds, you will see messages on the LCD screen. If not, adjust the contrast and brightness controls **(6,E)** and **(6,F)** until the messages appear. With the messages visible, adjust the rotation angle of the screen until you find the position best suited to the working environment.

REFERENCE DIAGNOSTICS

When the system is turned on a series of ROM-resident Resident Diagnostics tests is executed to check the basic components of the system.

During these tests, the name of the component being tested is displayed on the screen along with a message indicating if the test has been passed.

When a test is successfully completed, the word **Pass** appears on the screen next to the component's name; for example, **Keyboard Pass.** If the test is unsuccessful, the word **Fail** appears instead of the word **Pass.** If the Resident Diagnostics produce a **Fail** message, it does not necessarily mean that the system cannot be used.

Some errors are transient and can be remedied simply by restarting the system with a **hardware reset,** as described later in this chapter.

The RUN SETUP Message

Another message that may appear the first time you use your system, or if you have added or changed hardware options, is:

xxxxx Configuration Error - RUN SETUP

This message (where **xxxxx** indicates a component that can be configured) means that you **MUST** run the SETUP Utility on the CUSTOMER TEST diskette before the system can be used dependably.

Execution and use of the SETUP Utility are described later in this chapter.

The NON-SYSTEM DISK or DISK ERROR Message

Another message that may appear during the Resident Diagnostics phase is:

Non-System Disk or Disk Error

This message indicates that operating system initialization (Boot) files were not found on drive **A** (or on drive **A** or drive **C** if the configuration incorporates a hard disk unit) and that **NO RESIDENT BASIC** programming interpreter was found in the system's Read Only Memory (ROM).

Insert a system diskette in drive **A** and press the **ENTER** key on your keyboard. (If you are not familiar with diskette use, see Chapter 5.)

The ROM BASIC NOT PRESENT Message

If your system has a hard disk unit, you may also see the following message during the Resident Diagnostics phase:

ROM BASIC not present

It simply means that the hard disk has not yet been prepared for use. Once the hard disk has been prepared, this message will no longer appear. How to prepare your hard disk is explained in the documentation that comes with your operating system.

RESETTING

Temporary problems can occasionally prevent your system from working properly. For example,

- When working under AC power, transient electrical signals can be produced (normally through the external AC power source) that interfere with the Reference Tests. This can cause a specific component to issue an error message, even if the component is working correctly.

- An application program may malfunction in such a way that it is not possible for you to continue.

These problems can be resolved by performing a **hardware reset.**

HARDWARE AND SYSTEM RESETS

There are two types of resets:

- **Hardware**
- **System**

The type to be used at a particular time depends on the circumstances.

> **NOTE:** Both types of reset should be used with care since they destroy all current contents of RAM memory and reload (reboot) the system.

The following descriptions of resets refer to keyboard key combinations. If you are not familiar with keyboard use, see Chapter 4.

Hardware Reset

A hardware reset is the equivalent of turning your system **OFF** and then **ON** again. It can be performed by means of the system's Power On/Off switch or, if the system's keyboard is not blocked, by holding down the **CTRL** and **FN** keys, pressing the **DEL** key, and then releasing the three keys.

Since it is equivalent to turning system power off and then on, a hardware reset places more demands on the system's electronic components than a system reset. Whenever possible, use a **system** reset.

System Reset

To perform a system reset, hold down the **CTRL** and **ALT** keys, press the **DEL** key, and then release the three keys.

A system reset does not interrupt the power supply to the system's electronic components. It can be used whenever the operating system (or application) has been loaded successfully and the keyboard is not blocked.

THE SETUP UTILITY

Your system comes with specific hardware options already configured. The resident diagnostics automatically sense most of the configured modules when the system is turned on. However, the first time you use your system, or the first time after you modify the system by adding or removing options, the configuration should be verified. Your system also includes power-saving facilities that are preset to default values. Most of the delay times for automatic shut-off of the major power-consuming modules can be tailored to your needs. Configuration and delay time values are set by running the SETUP Utility on the CUSTOMER TEST diskette.

As a general rule, the circumstances when the SETUP Utility must be run are:

1. When the message **xxxxx Configuration Error - RUN SETUP** appears during the Resident Diagnostics phase. (Where **xxxxx** in the message indicates a component that can be configured.)

2. When a system hardware component is added, removed, or changed.

3. When the amount of memory is changed.

4. When you want to modify delay times for automatic module shut-off.

5. When the system's clock/calendar battery fails or is replaced.

WHAT THE SETUP UTILITY DOES

The SETUP Utility stores the configuration values in non-volatile memory. The values stored in this memory tell the system about your configuration each time you switch it on or reboot it.

HOW TO RUN THE SETUP UTILITY

To run this utility:

1. Insert the CUSTOMER TEST diskette (or a copy) into diskette drive **A**.

2. Switch on the system. If the system is already on, perform a system reset: hold down the **CTRL** and **ALT** keys and press the **DEL** key. Release the three keys. The initial part of the CUSTOMER TEST program will be loaded into memory.

3. The language choice screen will appear. Choose the language in which messages are to be displayed and press the **ENTER** key.

4. A screen explaining the use of CUSTOMER TEST will appear. Press the **ENTER** key.

   In certain cases, for example when the clock/calendar battery has been changed, CUSTOMER TEST will automatically enter the SETUP Utility option. Otherwise, the Main Menu will be displayed.

5. The Main Menu offers the following three options:

   - System Checkout
   - SETUP Utility
   - Test One Module

   You may also see the message **SYSTEM OPTIONS NOT SET.** If you do, always select the SETUP Utility option.

NOTE: The **System Checkout** and the **Test One Module** options of the Main Menu are described in Appendix C.

How to Interact with the SETUP Utility

When the SETUP Utility option is chosen from the Main Menu, the SETUP screen appears. It presents a list of items that can be set. When it appears, each item that is set incorrectly is signalled by a vertical bar to its left. When an item has been set correctly, its vertical bar disappears.

To set an item in the SETUP screen, follow the instructions shown on the screen.

System options are chosen from the list the program presents to you. Highlight items in the list by using the **up arrow** and **down arrow** keys. When an item you want to set is highlighted, press **ENTER** to select it. Then use the **up arrow** and **down arrow** keys to scroll through the list of optional values from which you can choose for the selected item. When the correct optional value is displayed, press **ENTER** to set it as the value to be used.

When the values of the listed items have been set, press **ESC.** The values as set are stored in the non-volatile configuration memory. The system is rebooted and configured according to the values you set.

CONFIGURATION VALUES

The values for each of the SETUP screen items are described below.

Date (mm-dd-yy)

Enter a valid date in the format shown (mm represents the month, **dd** the day, and **yyyy** the year).

> **NOTE:** The date format shown is either mm-dd-yyyy or dd-mm-yyyy depending on the national language chosen on Language Selection screen (displayed when CUSTOMER TEST was loaded).

If you subsequently change the date with an operating system command, the new date overrides the one set using this option, and will be the one used whenever you turn on or reboot the system.

Time (hh:mm:ss)

Any valid 24-hour time may be entered in the format shown (**hh** represents the hours, mm the minutes, and **ss** the seconds).

If you subsequently change the time with an operating system command, the new time overrides the one set using this option, and will be the one used whenever you turn on or reboot the system.

Primary Monitor Type

This parameter specifies the display mode in which the LCD screen is to operate when the system is powered on.

The values from which you can choose, and their meanings, are:

- **Monochrome** : The system's LCD is to simulate a monochrome monitor.
- **Color 80*25** : The system's LCD is to simulate a color monitor in 80*25 display mode.
- **Color 40*25** : The system's LCD is to simulate a color monitor in 40*25 display mode.

If you set one of the color options (80*25 or 40*25) remember to set the **Gray Scale** parameter (see below) to **<ENABLED>**.

Backlight Power Save Mode

This parameter enables or disables the backlight power save feature. When operating on batteries, it should be set to **<ENABLED>** and the power save delay time interval set with the parameter that follows.

Backlight Power Save Delay Time (mm)

This parameter specifies the delay time after which (when there have been no disk I/O function calls or keyboard activities) the system timer routine is to switch off the backlight.

The delay time is specified in minutes (represented by mm). It can be set for any time within the range 01 to 59 minutes. The default value is 4 minutes.

Battery Alarm

This parameter enables or disables the battery alarm. When working on batteries, it should be set to **<ENABLED>** . If enabled, the system timer will sound the acoustic signal when the battery power is low (this is in addition to the blinking of the Power On indicator LED on the front panel).

Character ROM

This parameter specifies the extended ASCII characters that can be entered by use of the **ALT** plus Numeric Keypad keys (as described in Chapter 4). Choose the value corresponding to the extended national ASCII character set you want to use.

Gray Scale

This parameter can be used to enable or disable LCD color mapping in shades of gray. Colors are mapped in 7 gray scale levels if it is **<ENABLED>.**

Hard Disk Power Save Mode

This parameter enables or disables the hard disk power save feature. When working with battery power, this parameter should be set to **<ENABLE>** and the **Hard Disk Power Save Delay Time** parameter (see below) should be set.

This parameter appears only if a hard disk is configured in the system.

Hard Disk Power Save Delay Time (mm:ss)

This parameter specifies the delay time after which (in the absence of a hard disk access) the hard disk will go into standby mode.

The delay time is specified in minutes and seconds (represented by mm:ss). The value entered can be in the range 1:00 to 18:20, in 5-second intervals. The default value is 4:00.

This parameter appears only if a hard disk is configured in the system.

Modem Power Mode

This parameter turns the power supply to the modem board ON/OFF.

This parameter appears only if an integrated modem board (see Appendix B) is installed in the system.

INSTALLING THE OPERATING SYSTEM

If this is the first time you are using your system, you are now ready to install your operating system. We recommend MS-DOS Release 3.30A, revision 1.02 (or a later version).

Full installation instructions are provided in the documentation that comes with your operating system.

KEY NAME	FUNCTION
←	BACKSPACE key. Deletes the character to the left of the cursor.
BREAK	Interrupts the current operation, program listing or execution. Normally used with the CTRL key.
CAPS LOCK	CAPS LOCK key. Sets the keyboard for entry of uppercase letters (the built-in LED lights). Press again to set the keyboard to the lowercase mode (except for French, and German keyboards where SHIFT must be pressed to return to lowercase mode).
CTRL	Control key. Used together with other keys. (CTRL = CONTROL)
DEL	Deletes the character at the cursor position. (DEL = DELETE)
END	Positions the cursor downward, usually to the bottom of the screen.
ENTER or ↵	Used to complete entry.

KEY NAME	FUNCTION
ESC	Control key. Used to return to the preceding menu. (ESC = ESCAPE)
F1 to F10	Function keys. The functions are application dependent.
FN	Control key. Always used with another key. (FN = FUNCTION)
HOME	Positions the cursor in a specific location, normally the upper left of the screen.
INS	Changes the keyboard mode from inserting to overwriting characters. (INSERT = INS)
NUM	Used in conjunction with the FN key to turn the numeric keypad function on/off.
NUM LOCK	Toggles between numeric keypad use for numeric entry (the built-in LED lights) and cursor control mode.

Select Processor Speed

Your system can operate at two processor speeds: **10 MHz** or **8 MHz.**

To switch from one speed to the other, hold down the **FN** key, press the **F8** key, and release both keys.

If the system is operating at 10 MHz this combination changes the speed to 8 MHz, and vice versa.

The current speed is indicated by the color of the power indicator light **(6,A):** GREEN when operating at fast (10 MHz) speed; YELLOW when operating at slow (8 MHz) speed.

Select Display Mode

Your LCD can display information in two modes: **normal** (white characters on a blue background) and **reverse** (blue characters on a white background). To switch from one mode to the other, hold down the **FN** key, press the **F9** key, and release both keys.

If the LCD is in normal mode this combination changes it to reverse mode, and vice versa.

Select Display Device

You can alternate the display output between the LCD and the external CRT port. To change the display output, hold down the **FN** key, press the **F10** key, and release both keys.

If the current display is the LCD, the system switches to the externally connected monitor, and vice versa.

NUMERIC KEYPAD SECTION USE

The keys of the numeric keypad section (12,F) have purple numbers/symbols on their fronts.

To activate and deactivate their use as numeric keypad keys, follow these steps:

1. If the LED integrated in the **NUM LOCK** key is not lit, light it by pressing that key.

2. Hold down the **FN** key, press the **NUM LOCK** key, and release both keys. The numeric keypad mode is now active. You can use the keys in this section as you would a standard 10-key keypad.

   NOTE: While the **NUM LOCK** light is lit during numeric keypad mode, you can use the keypad section keys for entry of the alphanumeric characters associated with them. To enter a lower case character, hold down the **FN** key and press the desired key. To enter an upper case character, hold down the **FN** and **SHIFT** keys and press the desired key.

3. As with a standard 10-key keypad, you can also use the keypad keys as cursor/page control keys. This can be done with the **NUM LOCK** key or the **SHIFT** key:

   - Press the **NUM LOCK** key. The NUM LOCK indicator light goes out, and the keys in the numeric keypad section function as cursor/page control keys.

     Pressing the **NUM LOCK** key again returns the numeric keypad section keys to numeric entry functions.

- Press the **SHIFT** key to alternate use of the numeric keypad keys between numeric and cursor/page functions (if the **NUM LOCK** light is on) or cursor/page and numeric functions (if the **NUM LOCK** light is off).

4. To turn off numeric keypad mode and return to normal keyboard operation, hold down the **FN** key, press the **NUM LOCK** key, and release both keys.

Temporary Use of the Keypad

To temporarily access the functions of the numeric keypad section, follow these steps:

1. If you want to use the numeric functions of the keypad section keys, make sure the **NUM LOCK** key LED is lit (if it is not, press that key to turn it on).

   If you want to use the cursor/page control functions of the keypad section keys, make sure the **NUM LOCK** key LED is not lit (if it is, press that key to turn it off).

2. Hold down the **FN** key.

3. Press the desired key in the numeric keypad section.

4. To return to normal keyboard operation, release the **FN** key.

Keypad Mode Key Use Tables

The following charts summarize the affect of **SHIFT**, **FN**, and **NUM LOCK** key combinations as regards the use of keys in the numeric keypad section.

The first chart summarizes use with numeric keypad section mode turned off. The second summarizes use with the numeric keypad section mode turned on.

Numeric Keypad Mode Off

NUM LOCK LED Status	Keypad Keys Use	Key Pressed with Keypad Key	Resulting Keypad Keys Use
OFF	Lower case letters	SHIFT	Upper case letters
		FN	Cursor control
ON	Lower case letters	SHIFT	Upper case letters
		FN	Numbers

NOTE: Figure 15 shows a 720KB diskette. The visible difference, in case you have unlabeled diskettes, is that a 1.44MB diskette has an additional hole on the other edge of the diskette opposite the write protect opening **(15,D)**. It is through the presence or absence of this second hole that the diskette drive determines whether you have inserted a 720KB or 1.44MB diskette.

The 3.5" drive of your system accepts 3.5" 720KB diskettes and 1.44MB High-density diskettes. The 720KB diskettes are often labeled as 1MB capacity and the 1.44MB diskettes as 2MB; however, once formatted their respective capacities are about 720KB and 1.44MB.

LABELING DISKETTES

Labels are used to record information about the contents of the disk. Whenever possible, write the information on the label before attaching it to the diskette. If you must write on an already attached label use a felt-tip pen. Avoid the use of pencils and hard-tip pens; even though the diskette casing is fairly rigid, too much pressure might result in damage to the recording surface.

Two types of self-adhering labels are available for 3.5" diskettes. Both types are attached in the label area **(15,C)** on the upper side of the diskette.

- **7 x 7 cm** (2.8" x 2.8") format: this type is attached beginning at the top of the label area. The excess length is folded around the end of the diskette and up the other side.

- **7 x 3 cm** (2.75" x 1.2") format: this type is attached where desired in the label area.

NOTE: Avoid label build-up. Place the diskette on a flat surface and peel off the old label before attaching a new one.

CARE AND HANDLING OF DISKETTES

Although 3.5" diskettes are not particularly fragile, careful handling will minimize the risk of damaging them.

We recommend the following rules when using diskettes:

- Don't try to clean the surface of a diskette.
- Don't expose diskettes to dust
- Don't expose diskettes to heat (radiators, direct sunlight, etc.) or to humidity.
- Don't expose diskettes to strong magnetic fields (magnets, motors, telephones, etc.).

WRITE PROTECTION

When you apply write protection to a diskette, its contents cannot be altered. The system can read from a protected diskette, but cannot write to it. To avoid inadvertently overwriting information you store on diskettes, you should make it a habit to write protect them.

To write protect a 3.5" diskette, turn it over (with the label side facing down), and slide the corner tab (15,E) down as far as it will go using the point of a pen, until you hear a click. The write-protect opening should now be clearly visible from both sides of the diskette. With the tab in this position, the diskette cannot be written to, only read.

To deactivate the write-protect mechanism, slide the tab back up. When the opening is completely closed (you should again hear a click), the diskette can be written to and read from.

INSERTING AND REMOVING DISKETTES

Always insert and remove a diskette with care, observing the following rules:

- Normally, the system should be powered on before a diskette is inserted.

- **NEVER** remove a diskette while the system is accessing it. Doing so can destroy the information on the diskette, damage the diskette, or even damage the disk drive.

  You can tell if a diskette is being accessed by looking at the drive indicator LEDs on the front panel: **(6,D)** for diskette drive **A** and **(6,C)** for disk drive **B** (hard disk systems have only one diskette drive; for those, this LED is lit when the hard disk is being accessed). When one or the other is lit, it means that the drive with which it is identified is being accessed.

NOTE: The color of the disk drive indicator LEDs depends on the media being accessed:

- **YELLOW** when a 720KB diskette is being accessed.

- **GREEN** for a 1.44MB diskette or, in the case of LED **(6,C)**, for the hard disk.

Inserting a Diskette

1. Hold the diskette with the label facing upward and the shutter toward the drive **(Figure 16)**

2. Push the diskette gently into the drive until you hear a click.

3. The ejection button of the drive **(17,A)** will be pushed out when the disk is in place.

Removing a Diskette

When you are done working with the diskette, press the ejection button **(17,A)**. This pushes the diskette partially out of the drive for easy removal.

THE HARD DISK

The hard disk is a magnetic unit capable of storing large amounts of information. Hard disk capacity is expressed in terms of Megabytes (MB); 1 Megabyte = about 1 million characters. The capacity of the unit incorporated in the hard disk configuration of this personal system is 20MB.

The hard disk allows you to store and then access large numbers of programs and data files without having to handle and keep track of diskettes.

As well as having a greater storage capacity, the hard disk has a faster access time to files and programs. You can work more easily and quickly with the hard disk.

Information is easily transferred from a diskette to hard disk. For example, you may copy the operating system and application software. Once these programs have been copied, you will be able to do most of your work with the hard disk alone.

NOTE: It is recommended that you **DO NOT** copy the **CUSTOMER TEST** diskette onto the hard disk.

The hard disk will be your main storage device. Diskettes will serve primarily for making backup copies of important files or for loading applications to the hard disk.

TROUBLESHOOTING AND CUSTOMER TEST

TROUBLESHOOTING

There are situations in which problems may arise, whose cause you yourself can pinpoint and easily remedy.

The following are guidelines for solving some of these problems.

1. PROBLEM:

   When the system is switched on, nothing appears on the screen.

   If the power indicator LED is lit, the contrast control may not be adjusted correctly. Move the contrast control slowly in both directions to find the optimum setting.

   If operating on battery power, the battery may be very low (in this case, the power indicator LED will not be lit). Change to AC operation. Recharge the battery pack.

2. PROBLEM:

   When working on battery power, after switching the system on, several lines appear on the screen, the resident diagnostics do not run, the power indicator LED does not light, and there is no acoustic signal (or only one beep). The battery pack is too low.

   Change to AC operation. Recharge the battery pack.

3. PROBLEM:

When operating on battery power, the battery pack does not seem to be sufficiently charged after a full charging cycle of 5 hours. The power indicator LED begins to blink during battery operation.

When you completed the last charge cycle and disconnected the system from AC power, you may have forgotten to turn the system off. Try a second charge cycle. If this second cycle is not successful, consult your dealer. The battery pack may need to be replaced.

THE CUSTOMER TEST DISKETTE

The CUSTOMER TEST diskette contains a diagnostic program that allows you to identify problems which might be present in any system module except the AC adapter, the battery pack, and the backlight. Each of the other modules of the system can be tested with this diskette. The tests will tell you if any components are not working correctly.

Should you have a problem with the system, use this diskette before calling for technical assistance. The tests available will help you determine if your problem is hardware-related.

NOTE: As soon as possible after receiving your system, make a copy of the CUSTOMER TEST diskette. Put the original diskette in a safe place and perform the tests using the copy. Instructions on how to copy a diskette are included in the documentation that comes with your operating system.

USING THE CUSTOMER TEST DISKETTE

To load and execute the diagnostic program contained on the CUSTOMER TEST diskette, perform the following operations:

1. Switch on the system.

   NOTE: If possible, operate under AC power, the read/write operations performed by the tests are very power-consuming.

2. Insert the copy of the CUSTOMER TEST diskette (write-protected) into disk drive **A**.

3. Perform a reset by holding down the **CTRL** and **ALT** keys and pressing the **DEL** key. Release the three keys. The initial CUSTOMER TEST program will be loaded into memory.

4. A language choice screen appears. Choose the language in which messages are to be displayed and press the **ENTER** key.

5. A screen explaining CUSTOMER TEST facilities is displayed. Press the **ENTER** key.

6. The Main Menu appears. For diagnostics, you can select an automatic test of the whole system **(System Checkout)** or a test of a single module **(Test One Module)**.

   The other Main Menu option, **SETUP Utility**, is described in Chapter 3.

   Select the diagnostics option you want by following the directions on the screen.

7. If you select **Test One Module,** a list of modules and system components that can be tested appears on the screen. Select one of them.

   If you select the **System Checkout** option, every module will be tested in turn.

8. During the test of a module, its name and a graphic representation of it are displayed. The percentage of time remaining before the test is complete appears in a rectangular gauge on the screen.

   A message appears asking you to wait for the test to be completed. When the test is completed, a message appears stating whether the module has passed or failed the test.

9. When diskette drive **A** is tested, a message asks you to remove the CUSTOMER TEST diskette and insert a scratch diskette. A message asking you to insert a scratch diskette also appears when diskette drive **B** is tested. In both cases, the diskette you insert must not be write protected.

   When a diskette drive test is finished, the disk in the tested drive cannot be used for any other purpose except diskette drive testing until it has been re-formatted.

10. After a diskette drive **A** test, reinsert the CUSTOMER TEST diskette to continue.

The CUSTOMER TEST program is very easy to use. Messages appear during testing to guide you through the program. You need not worry about making wrong selections.

EXPANDING THE SYSTEM

INSTALLING OPTIONS

This appendix explains how your system can be expanded by connection/installation of optional units and/or an option board.

MOUSE

A PS/2 compatible mouse can be connected to your system.

Simply insert the plug end of the mouse cable into the mouse/keyboard port **(7,C)** on the right side of the system.

EXTERNAL KEYBOARD

A PS/2 compatible external keyboard can be connected to your system.

Simply insert the plug end of the keyboard cable into the mouse/keyboard port **(7,C)** on the right side of the system.

EXTERNAL NUMERIC KEYPAD

An AT/XT compatible external numeric keypad can be connected to your system.

Simply insert the plug end of the keypad's cable into the keypad port **(7,D)** on the right side of the system.

> **NOTE:** When an external keypad is connected, the internal keypad facility (as described in Chapter 4) is completely disabled.

PRINTER

You can choose from a wide range of printers for your system. Consult your dealer for detailed information on the printer or printers that will best meet your needs.

The documentation that comes with your printer will say whether it should be connected to the parallel interface port **(8,D)** or the serial (RS-232-C) interface port **(8,F)** on the rear panel of the system.

Whichever port is used, secure the connection by tightening the two screws of the printer cable after inserting it in the rear panel port.

> **NOTE:** If the serial interface port is used, you may need to adjust printer configuration parameters. See the documentation that comes with your printer and the documentation that comes with your operating system for information on printer configuration.

EXTERNAL MONITOR

Your system includes a port **(8,E)** for connection of an external monitor. As explained later in this chapter, you can also install an XT-compatible, half-size CRT controller board for connection of an external video. If you do, its connector will be available at the end of the optional board slot **(8,C)** in the rear panel.

Whichever type of connection is made, secure it by tightening the two screws on the end of the monitor cable.

OPTIONAL BOARDS

Your system incorporates a slot for installation of an optional expansion board. Installation requirements are that boards be 8-bit, XT-compatible, half-size, with a maximum power consumption of 6.8 W. Amongst the many industry standard boards you can install, all readily available on the market, are:

- EGA display board
- OVC display board
- Modem board

INSTALLING AN OPTIONAL BOARD

IMPORTANT: Before installing a board, check the documentation that comes with it. There may be switches to be set or other special actions to be performed.

The steps to be followed when installing an optional board are:

1. Switch off the system and close the lid.
2. If any external units are connected to external power, disconnect them from their power sources.
3. Disconnect any cables connected to the system (for example, the AC power adapter, a mouse, a printer, and so on).
4. Turn the system upside down and, using a Phillips-head screwdriver, remove the long screw **(18,A)** that secures the slot access cover **(18,B)** in place. Then push the cover slightly to the left and remove it completely.
5. Remove the screw **(19,A)** from the top of the option slot opening. Put the screw aside for later use.

6. Hold the board with the components side facing the disk drive. Push the board well into the connector to ensure a good connection.

7. Secure the board in place with the screw **(19,A)** previously removed.

8. Replace the slot access cover and secure it with the long screw **(18,A)**.

9. Turn the system over to its normal position and connect the cable(s) previously removed.

RAM MEMORY EXPANSION

The basic memory of your system is contained on the system board. There is also space for adding a 1MB expansion memory board to the bus adapter.

INSTALLING A 1MB MEMORY BOARD

The steps to be followed in installing a 1MB memory expansion board are:

1. Switch off the system and close the lid.

2. If any external units are connected to external power, disconnect them from their power sources.

3. Disconnect any cables connected to the system (for example, the AC power adapter, a mouse, a printer, and so on).

4. Turn the system upside down. Press the catch that secures the memory cover and remove the cover **(20,A)**.

5. Remove the screw **(20,B)** from the expansion memory opening. Put the screw aside for later use.

6. Push the board well into the connector to secure a good connection.

7. Secure the board in place with the screw **(20,B)** previously removed.

8. Replace the memory cover.

9. Turn the system over to its normal position and connect the cable(s) previously removed.

IMPORTANT: With the 1MB RAM Memory Expansion Board you will receive a diskette that contains software drivers for that board. These drivers must be installed immediately after board installation. Follow the directions that come with the board.

OTHER OPTIONAL UNITS

Your system can accommodate a numeric coprocessor (INTEL 8087) for increasing the execution of math algorithms and subroutines.

A 2400 BPS modem, for integration into the system, is available for connecting your system to the telephone network.

For installation of either or both of these options, see your dealer. Installation must be performed by technically qualified personnel.

BATTERIES AND BACKLIGHT

SYSTEM BATTERIES

Your system incorporates two types of batteries: the removable battery pack and the clock/calendar battery. You can recharge the battery pack through the AC adapter that comes with your system (simply connect the adapter). When necessary, after about 500 full charge cycles, you can replace the battery pack with a new one from your dealer. The clock/calendar battery is recharged from the battery pack; it can be replaced only by qualified technical personnel.

THE BATTERY PACK

The battery pack permits you to operate the system without an AC power supply. We recommend that you always keep it in the system. Do not remove the battery pack except to replace it with a new one. As with any battery, the length of time it can supply power depends on its age, its current charge, and the amount of current drawn by the operations in course. You should keep the battery pack charged, and never remove it from the system.

> **IMPORTANT: One of the reasons to always have the battery pack inserted in this system is the automatic switching facility. When the system is operating from an AC power supply, through connection of the AC adapter, it automatically switches to battery power if the AC power supply to the adapter fails. Thus, the information in RAM is not lost. You can continue your work without interruption.**

The system's average battery operational times, over one or a number of successive working sessions, starting with a new, fully charged battery pack, are:

- With diskette and LCD in use: a maximum of **4.0 hours**

- With diskette and hard disk and LCD in use: a maximum of **3.0 hours**

The above times assume disk drives (diskette or hard disk) are used for about 10% of the period. If they are used for a higher percentage, times will be reduced; if used for a lower percentage, times will be increased. They also assume a fully charged, relatively new battery. An older battery pack, even when fully charged, will not provide power for as long as a relatively new one; a partially charged battery cannot last as long as a fully charged one.

CHARGING THE BATTERY PACK

The battery pack charges whenever the AC adapter unit is connected. Connection of the AC adapter is described in Chapter 3. During charging time, you can turn on your system and work with it without disturbing the charge cycle.

The length of a full charge cycle for a new battery pack is approximately five hours. When the battery pack is fully charged, the charge cycle ends and the charge indicator LED **(8,A)** on the back panel comes on.

As noted in Chapter 3, your system comes with its battery pack only partially charged. We recommend that the first thing you do is charge the pack fully. Connect the AC adapter. During the time required for a full charge, you can execute the SETUP Utility, load your operating system or application, and so on. Whether you work with your system or not, leave the AC adapter connected until the charge indicator LED comes on.

IMPORTANT:

- When the charge indicator LED comes on, if the system is turned on, and you are not working with it at that time, turn the system off before disconnecting the AC adapter from its power supply. If the AC adapter is not connected and the Power On/Off switch is on, battery power is being used.

- The system includes facilities for specifying: the length of time power will be supplied to the LCD backlight when there have been no input/output operations or keyboard activities, and the length of time after which the hard disk will go into standby mode when there has been no hard disk access. Both these facilities can save battery power. They are set though the SETUP Utility (see Chapter 3).

BATTERY PACK LOW WARNING

The system signals when battery pack power is low in two ways:

- the power on indicator LED **(6,A)** begins to blink; and

- The acoustic signal sounds (if this has been enabled during execution of the SETUP Utility, as described in Chapter 3).

When this happens, from **ONE** to **FIVE** more minutes remain for battery power operation. The exact time depends on the age of the battery pack and the work in course (hard disk in use, LCD backlight on/off, and so on). Terminate your work session and, as soon as practical, recharge the battery pack.

INSERTING/REPLACING THE BATTERY PACK

To insert/replace the battery pack:

1. Switch the system off. If it is connected to AC power, disconnect it (and if any self-powered units are connected to AC power, disconnect them, too).

2. Remove the battery pack compartment cover **(21,A)** by sliding it back and up to disengage the tabs that hold it to the system's casing. With the cover removed, the latch end of the battery pack is exposed.

3. Grasp the latch on the end of the battery pack **(22,A)**. Rotate it down and pull steadily outwards to remove the battery pack **(23,A)**.

4. Insert a new battery pack of the same type. When it has been inserted all the way, push up the battery pack latch against the battery pack to lock it in place.

5. Replace the battery compartment cover by positioning the tabs in the casing slots and sliding it forward and down.

6. Connect the system to AC power. Leave it connected for the full battery pack charge cycle (approximately five hours for a new battery pack).

CLOCK/CALENDAR BATTERY

The clock/calendar battery provides power for the system's internal real time clock/calendar functions. Fully charged, it maintains these functions for approximately two months. If it becomes discharged, the internal clock/calendar stops.

When the system is turned on, the clock/calendar battery is recharged from the system's battery pack. Intermittent use of your system normally keeps the clock/calendar battery sufficiently charged.

IMPORTANT: Do not attempt to replace the clock/calendar battery yourself. See your dealer; it is a job for qualified technical personnel.

THE LCD BACKLIGHT

The system's LCD backlight has been designed for long life. Only after an extended period will any decrease in brightness be noted. The back light should be replaced when the decrease is significant enough to interfere with your use of the system.

IMPORTANT: Do not attempt backlight replacement yourself, it is a job for qualified technical personnel.

TECHNICAL CHARACTERISTICS

TECHNICAL CHARACTERISTICS	
CPU:	V30 10 MHz/8 MHz (dual speed)
NUMERIC COPROCESSOR:	8087 10 MHz/8 MHz (option)
ROM:	64KB
RAM:	User RAM: 640KB Video RAM: 32KB
CLOCK:	Battery maintained clock/calendar
TWO DISK DRIVE SYSTEM:	Two 3.5" disk drives (each 1.44MB/720KB) No. of heads: 2 No. of cylinders (tracks): 80 Data transfer rate: 500K/250K bits/sec. Step rate: 3 msec track to track
HARD DISK SYSTEM:	One 3.5" disk drive (1.44MB/720KB) One integrated 3.5" hard disk unit Storage capacity: 20MB (formatted) Average access time: 27 msec Head parking: power off auto-retractable

TECHNICAL CHARACTERISTICS

Power supply to Central Unit:	17.5 V DC (from AC adapter) 12.0 V DC (from battery)
System power consumption: (max.)	Two disk drive system: max. 30 W Hard disk unit system: max. 40 W
Display:	Liquid crystal display (LCD) Super twist Backlight Alphanumeric Resolution: 25 lines of 80 characters 25 lines of 40 characters Graphic Resolution: 640 x 400 pixels 640 x 200 pixels 320 x 200 pixels
Keyboard:	82 keys 10 Function keys Numeric keypad (integrated in alphanumeric area) LEDs to indicate: numeric keypad, uppercase, and scroll lock modes
Battery:	Ni-Cad-Battery set, 12 V 500 charge/recharge cycles 5 hours (max.) recharging time

TECHNICAL CHARACTERISTICS	
Interfaces:	Parallel (Centronics) Serial (RS-232-C) PS/2-compatible mouse or external keyboard External keypad External CRT (CGA color RGB) Low power 2400 BPS modem
Option slot:	XT-compatible half size slot (6.8 W available when no other options are installed)
Environmental conditions:	Temperature range: - without use of option slot: 10 to 40 C (50 to 104 F) - with use of option slot: 10 to 35 C (50 to 91 F) Relative Humidity: 20 to 80 percent (non-condensing) Altitude (max.): operating 3,000 m (10,000 feet) non-operating 9,000 m (29,700 feet)

TECHNICAL CHARACTERISTICS

AC adapter: (universal)	Input: A.C. 85-264 V, 50 Hz or 60 Hz Output: 17.5 V AC supply tolerances: 110/220 V: Voltage +/-10 percent Frequency +/-1 percent
Weight:	6.8 kg (less than 15 lbs.)
Dimensions:	330 mm (w) x 364 mm (d) x 99 mm (h) 12.99" (w) x 14.33" (d) x 3.89" (h)

This equipment conforms to the specifications of the EEC directive 82/499 on the prevention and elimination of radio-frequency disturbances.

Warning: This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC Rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this computer. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

NOTICE

Ing. C. Olivetti & C., S.p.A. reserves the right to make any changes in the product described in this manual at any time and without notice.

Code 01210200 U
Printed in Japan

olivetti
PERSONAL
COMPUTER

olivetti

Supplement

M111 Installation and Operations Guide

AC ADAPTER POWER PROTECTION CIRCUIT

Sometimes, unusually high voltage impulses appear on the AC power line. To protect the M111 from these power surges, the AC Adapter has a built-in power protection circuit. If, for example, lightning causes impulses on the AC power line, the power protection circuit of the AC Adapter will activate.

> **WARNING: The power protection circuit will cut off power to the M111 and turn off the AC Adapter power indicator (10,C) if there are high voltage impulses on the AC power line.**
>
> **The M111 will automatically switch to battery power, and continue to run without interruption, provided the battery pack has been installed. Thus, no information will be lost.**

To reset the AC adapter, unplug the AC power cord from the AC outlet, and wait about 1 minute. Plug the AC power cord back into the outlet. The AC adapter power indicator (10,C) will light.

QUICK GRAY SCALE SELECTION

The M111 features a gray scale that simulates different colors on the monochromatic LCD display. However, some application programs use a set of colors that correspond to the same or similar levels of gray which are hard to distinguish.

If the Gray Scale Mode is enabled with the SETUP Utility on the Customer Test diskette, you can change the gray scale setting, without exiting your application program.

While holding down the **FN** and **SHIFT** keys, repeatedly press the **F9** key. Each time you press the **F9** key, one of the ten preprogrammed gray scale settings is loaded, changing the LCD display. Select the setting most suitable for your application program.

NOTE: The **FN+SHIFT+F9** key combination has no effect on the external monitor display, or if the Gray Scale Mode is disabled.

Supplement 2

M111 Installation and Operations Guide

CLOCK/CALENDAR BATTERY

The M111 includes a rechargeable battery, which powers the real time clock/calendar (RTC) and the non-volatile CMOS RAM memory. If the clock/calendar battery becomes discharged, the real time clock/calendar stops and the configuration values stored in the CMOS RAM will be lost.

The clock/calendar battery will be discharged when the M111 is used for the first time after it is unpacked. Also, this battery will be discharged after the M111 has lain idle for two months or more. Under these conditions, the following messages may appear when you turn on the system:

CMOS RAM Checksum Verification Fail
UNRECOVERABLE POWER-UP ERROR

RTC RAM Checksum Verification Fail

or

CMOS RAM Checksum Error - RUN SETUP

RTC RAM Checksum Verification Fail

Note: The system is NOT out of order.

If the UNRECOVERABLE POWER-UP ERROR occurs, press the F1 key to allow the system to continue. In any case, immediately run the SETUP Utility on the CUSTOMER TEST diskette, set the date and time of the real time clock, and confirm the M111 configuration values.

When turned on, the system recharges the clock/calendar battery with power from the battery pack, or from the AC adapter when connected to an external AC power source. Leaving the system on for an hour recharges the clock/calendar battery for about 2 or 3 days of use. If the system is left on continuously, the clock/calendar battery can be recharged (from a completely discharged state) within 24 hours.

Correction

M111 Installation and Operations Guide

CLOCK/CALENDAR BATTERY

In the description of the values of the Primary Monitor Type on page 3-11

- **Monochrome** : The system's LCD is to simulate a monochrome monitor.

should read

- **Monochrome** : The system is to use a Monochrome Display Adapter (MDA) board installed in the half-size XT-compatible expansion slot as the primary display.

To have the LCD simulate a monochrome monitor, set the Gray Scale Mode to **<DISABLED>**.